



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Serial No. 10/567,684  
Akira TAKAYASU et al.  
Filed: April 6, 2006

Confirmation No. 2119  
Group Art Unit: 2837  
Examiner:Forrest M. Phillips

DECLARATION UNDER 37 CFR 1.132

Honorable Commissioner of Patents and Trademarks

Sir,

I, Kazuhiko Kosuge declare that:

I am a citizen of Japan and a resident in Tokyo, Japan;

I received Master of Science from Waseda University,  
Faculty of Science, Tokyo, Japan, in 1972;

I received my doctor degree on the study of "Modification  
and Application of PPTA fibers" at Fukui University, Fukui  
Prefecture, Japan, in 2005;

I had been employed by TORAY CO., LTD, Japan in 1972 and  
worked at Films and Films Products Research Laboratories;

I have been an employee of DU PONT-TORAY CO., LTD, Japan,  
since 1995 up to this time;

I worked at "KEVLAR" Production Department, and then at  
"KEVLAR" Product & Application Technology Department;

At present, I am a Director of Technology & New Business  
Development and developing a new sound-absorbing and  
sound-insulating non-woven fabric, a new flame retardant, and

aramid fiber thermoplastic composite, etc.

I reported the following papers;

1. K. Kosuge:

"Studies on the Sound Absorption Properties of Paper Attached to Non woven Fabric and the Specific Role of the Paper in Sound Absorption"

Journal of the Society of Fiber Science and Technology, Japan (Sen-i Gakkaishi), published by The Society of Fiber Science and Technology, Japan, Vol.62, No.1, p.12 (2006)

2. K. Kosuge, A. Takayasu and T. Hori:

"Recyclable Flame Retardant Non-woven for Sound Absorption; Ruba®"

Journal of Materials Science, vol. 40, No. 20, pp. 5399-5405 (2005)

The experiment set out below was conducted under my supervision.

## Experiment

### 1. Materials

(1) Sound-absorbing materials RuBA-1 and RuBA-2 (the present invention)

Sound-absorbing materials (RuBA-1 and RuBA-2) were prepared in accordance with the procedure described in Example 10 of the present specification.

(2) Comparative sound-absorbing material (prior art reference)

A textile structure disclosed in Example 3 of U.S. patent No. 5,766,745, i.e. Comparative sound-absorbing material was prepared in accordance with the method disclosed in the description of U.S. patent No. 5,766,745.

## 2. Test Methods

The normal incidence sound absorption coefficients of the sound-absorbing materials (RuBA-1 and RuBA-2) and Comparative sound-absorbing material were measured in accordance with the procedure described in Examples of the present specification.

## 3. Test Results

The normal incidence sound absorption coefficients of the sound-absorbing materials, RuBA-1 and RuBA-2 of the present invention and Comparative sound-absorbing material, were shown in Table 1 and Figure 1.

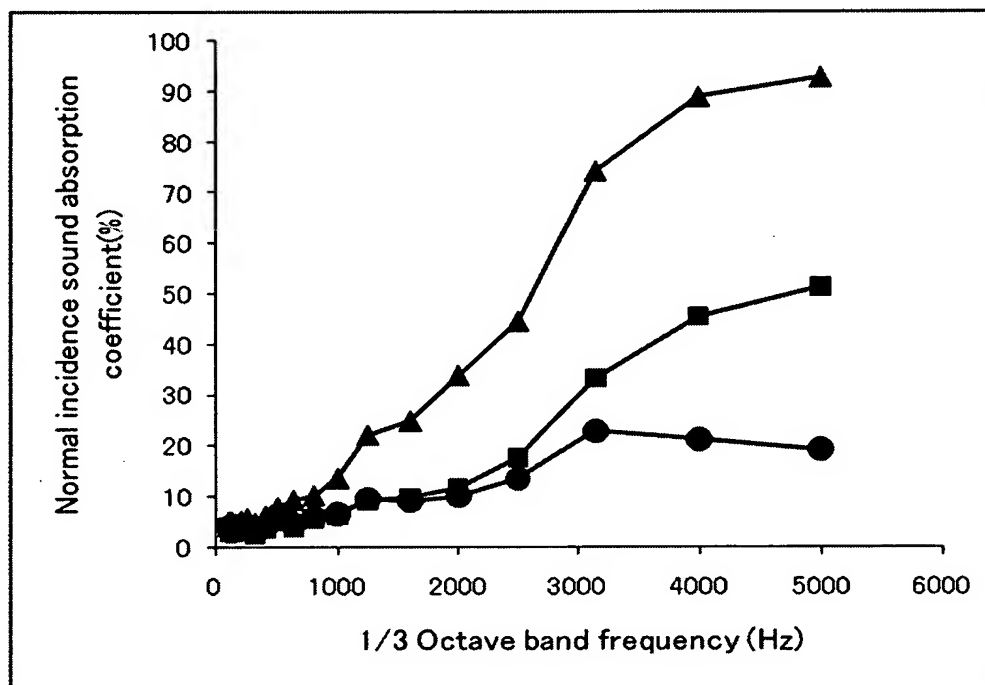
Table 1

	1/3 Octave band frequency (Hz)	The present invention		Prior art reference
		RuBA-1	RuBA-2	Comparative sound-absorbing material
Normal incidence sound absorption coefficient (%)	100	4	5	4
	125	3	5	3.2
	160	3.1	4.6	3.3
	200	3.4	5.2	3.7
	250	3.5	5.7	3.8
	315	2.5	4.7	3.1
	400	3.6	6.2	4
	500	5.1	7.9	6.2
	630	4	9.3	4.6
	800	5.6	10.2	5.9
	1000	6.3	13.6	6.5
	1250	9.1	22.1	9.5
	1600	9.8	24.9	9.1
	2000	11.6	33.9	10
	2500	17.6	44.6	13.5
	3150	33.3	74.3	22.9
	4000	45.5	89	21.2
	5000	51.4	92.9	19.2

As is clear from Table 1 and Figure 1, RuBA-1 and RuBA-2 exerted a higher effect of absorbing sound as compared with Comparative sound-absorbing material. Especially, RuBA-1 and

RuBA-2 exerted a quite higher effect of absorbing relatively high frequency sound (that is, sound of 3000 Hz or more, especially 3500 Hz or more) as compared with Comparative sound-absorbing material.

Therefore, the results clearly demonstrate that RuBA-1 and RuBA-2 of the present invention are excellent in sound absorbency as compared with the sound absorbing material disclosed in prior art reference.



**Figure 1 : The normal incidence sound absorption coefficients**

The normal incidence sound absorption coefficients of the sound-absorbing material were measured in accordance with the procedure described in Examples of the present specification. ■: RuBA1, ▲: RuBA 2, and ●: Comparative sound-absorbing material.

It is declared by the undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

This ( 16 ) day of March, 2008

Kazuhiko Kosuge  
Kazuhiko Kosuge,